

## **Dust Geochemical Records from a Tibetan Ice Cap: A Paleo- Environmental Messenger**

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Information about dust particles morphology and composition in climate models is limited for the remote central Asian continent despite the region being one of the most arid on Earth and a major aeolian dust source area. High elevation central Asian glaciers are repositories of tropospheric dust that has experienced mixing and gravitational sorting during atmospheric transport. They hold the potential to serve as Asian dust archives. The particles entrapped in these high-altitude ice fields are substantially sorted by grain size with longer range transport enhancing sorting. In that sense, microparticles registered in these glaciers' ice cores are analogous to those found in Greenland ice cores, revealing the connection between the Asian source and the northern high latitude sink. This study aims to enhance climate model accuracy by providing new datasets on the mineralogical and geochemical composition of aeolian dust preserved in two Guliya ice cores from northwestern Tibet, China. This talk will present how lithological and geographical sources are identified from the mineralogical, elemental and Sr-Nd radiogenic signatures of the Guliya dust samples and how long-term variations in paleo-hydro-climatic conditions in NW Tibet are traced. The full Late Pleistocene Sr-Nd isotopes time series extracted from the two Guliya drilling sites will be discussed based on the composition of new potential source area samples and previously published regional loess records.